

## Chapter 8

# An Analysis of the Imbursement of Currency in a Debt-Based Money-Information System

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### INTRODUCTION

The imbursement of currency into modern debt-based money-information systems is a concrete phenomenon. Economic jargon traffics in abstract concepts. This analysis attempts to bridge the gap between the abstract and the concrete and to provide practical insights into certain social consequences of different modes of currency imbursement.

Information science, like economics, has developed as an analytic science. Many reasons might explain that development. Not least among them is the daunting complexity of the matter-energy systems they concern. Button and Dourish (1996) provide an interesting view of the role of systems design to provide an opaque barrier for decision-makers against that complexity while enabling engagement. That conceptual distance can give a false sense that the design of information systems should be limited only by imagination. Many definitions of information have been proposed and some have gained acceptance in certain circles. In some highly abstracted systems, Bateson's (1972,

xxv-xxvi) "difference that makes a difference" has appeal. Nevertheless, when we consider that technology emerges in self-organizing, evolving living systems that exist in physical space-time, that definition has little explanatory power. Alternatively, Shannon's H restatement of the measure of entropy (Shannon, 1948) that became known as a measure of information is significantly explicatory of an essential connection between information and matter-energy processes. Shannon's treatment of information as a reduction of uncertainty has found wide application.

Miller (1978) makes the connection between information and the processes in which it emerges. He straight-forwardly endorses Shannon's definition while also defining information as the formal patterning in space-time of the elements of matter-energy that comprise a concrete system. Only when we recognize that all continuing material organization is made possible by the unidirectional entropic processes occurring in nature can we begin to recognize the fundamental connection between information and the evolving processes of humankind.

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An eon before the analytic sciences of economics and information came into being, information systems were emerging and forming human civilization. It is important for information systems scientists, from time to time, to contemplate their rolls in that continuing grand scheme.

Human civilization may be approaching an evolutionary cusp. The agents that usher in the new era will likely not be grand new political thinkers, or even the clash of philosophers and ethicists. The legal, accounting, and information scientists and technicians are the likely actors. Their work requires exacting specialization. The grand view is seldom taken. If history teaches us that an uninterrupted advance in civilization always occurs, we might lean heavily on the unseen hand always guiding to the benefit of the whole. But, history teaches the opposite. The grand question is: Will the evolutionary cusp advance or retard human civilization?

The insight of the medical profession, “Do no harm,” should be considered by information systems scientists, technicians, and academics. Before replacing an evolved information system that supports life, whether biological or social, that system should be studied and understood.

This paper at first glance may seem inappropriate for the systems technologies as they are narrowly defined. It, however, attempts to describe in some significant degree two intertwined information systems embedded in the intercourse of social life. They are material processes of *exchange* and *money-information*. The analytics of information science often concern those processes. Their characteristics, consequently, constrain information systems development.

Information technology is never far removed from money-information processes. That fact notwithstanding, money-information processes are seldom a major subject of discussion except when the technology is directly involved with money transfers and accounting systems. Information systems are human artifacts and sometimes become prostheses. A journal that considers

information technology in tandem with system approach provides opportunity to consider special information systems deeply embedded in societies. The exchange system and the money-information system have become societal prostheses performing vital and fundamental information processes. It is difficult to conceive of information, which is processed by more narrowly defined information systems, that is not in some way constrained by those deeply embedded systems. This paper considers certain patterns of control that emerge in the money-information processes of modern exchange-based societies. Those cybernetics should instruct certain design processes of information systems.

## **CYBERNETICS AND EXCHANGE-BASED SOCIETIES**

Societies may be characterized by many different attributes and from a variety of perspectives. However one views a society, eventually the characterizations concerns a collection of living individuals in interaction, in physical space-time. Modern exchange-based societies are self-organizing and maintain a homeostasis, whereby complex internal changes occur among their components while they maintain a relative overall constancy. That relative constancy of the whole can only occur if a change in one component is met with opposite, reactive changes in the other components. From the time Cannon (1939, p. 293) gave us the term *homeostasis*, he anticipated the discovery of general principles that would apply not only to biological organization but also to “industrial, domestic, and social” ones.

General principles may be approached from an abstract perspective or from a concrete one. In both approaches, the object of the principles is ultimately concrete. That is so because human curiosity arises, as far as we may examine by science, in a material existence.

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